



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/585,943	05/30/2007	Jun Hirano	L8638.06112	1487

52989 7590 06/15/2010

Dickinson Wright PLLC  
James E. Ledbetter, Esq.  
International Square  
1875 Eye Street, N.W., Suite 1200  
Washington, DC 20006

EXAMINER
----------

AMIRMOKRI, JALALEDDIN

ART UNIT	PAPER NUMBER
----------	--------------

2617

MAIL DATE	DELIVERY MODE
-----------	---------------

06/15/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/585,943	<b>Applicant(s)</b> HIRANO ET AL.	
	<b>Examiner</b> JALALEDDIN AMIRMOKRI	<b>Art Unit</b> 2617	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 16 April 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) 15-17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 07/13/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>07/13/06 &amp; 05/30/07</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Status***

This is in response to application filed on May 30, 2007 in which claims 1-14 are presented for examination.

### ***Election/Restrictions***

1. Applicant's election without traverse of Group I (claims 1-14) in the reply filed on 04/16/10 is acknowledged. Claims 15-17 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to nonelected Groups II, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 04/16/10.

### ***Information Disclosure Statement***

2. The information disclosure statements (IDS) submitted on 07/13/2006 and 5/30/2007 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

### ***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 2617

4. Claims 6, 11, 12, 13 and 14 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. In claim 6 the limitation which states “maximum number of Binding Update messages to accept while it is unclear whether a dynamic routing protocol will be run by an away mobile router” is vague and does not clearly define the limitations of the said parameter. Claim 11 is nested if statement which can invoke an indeterminate or indefinite state. For instance the limitation: “whereas if the mobile router is authorized to run dynamic routing protocol, consulting the Route Manager if the mobile router has already sent routing update messages”, does not provide an escape clause for the if statement which can lead to an indeterminate or indefinite state. Claim 12 is nested if statement which can invoke an indeterminate or indefinite state. For instance the limitation: “checking configured error behavior in the configuration information for the mobile router” is not definite in terms of specifying all the possible combination. For example the claim limitations such as: configured error behavior is to tear down, ignore silently or ignore are stated but there is no definite statement or clause which claims that there are no other possible states, as such claim 12 is indefinite. Claim 13 is nested if statement which can invoke an indeterminate or indefinite state. For instance the limitation: “whereas if the prefix information specified in the binding update message is valid and the mobile router is authorized to run dynamic routing protocol, consulting the Route Manager if the mobile router has already sent routing update messages”, does not provide an escape clause for the if statement which can lead to an

Art Unit: 2617

indeterminate or indefinite state. Claim 14 is nested if statement which can invoke an indeterminate or indefinite state. For instance the limitation: “whereas if the mobile router is authorized to run dynamic routing protocol, consulting the Route Manager if the mobile router has already sent routing update messages”, does not provide an escape clause for the if statement which can lead to an indeterminate or indefinite state.

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 1-6 are rejected under 35 U.S.C 103(a) as being unpatentable over Momona (US Patent Application Publication No. 2003/0104807) in view of Sturniolo et al. (US Patent Application Publication No. 2006/0009213).

**Regarding claim 1**, Momona teaches an apparatus used in a communication node in a packet-switched data communication network wherein the communication node serves as a home agent for mobile routers so that a bi-directional tunnel is established between the home agent and the mobile router through which packets sent to the mobile network behind the mobile router are intercepted by the home agent and forwarded to the mobile router through the bi-directional tunnel, and packets sent by nodes from the mobile network are intercepted by the mobile router and forwarded to

Art Unit: 2617

the home agent through the bi-directional tunnel to be further routed to the appropriate destination (as described in paragraph [0047] and Fig. 1; e.g. Home agent HA1, router 104, mobile node MN1, paragraph [0006], lines 7-11; e.g. tunneling between the home and visiting domains – official notice is taken that intercepting packets and forwarding in a tunnel between home agent and mobile routers (e.g. foreign agents) is well known in the art such as in Yokote (US Patent Application Publication 2002/0147820)), the apparatus comprising:

- an Incoming Packet Processor that processes all incoming packets for standard networking protocol processing, and passing packets to different components once the types of the incoming packets are identified (as described in paragraph [0055], line 9, paragraph [0059] and Fig. 6; e.g. packet decapsulation unit 144);

- an Outgoing Packet Processor that performs all processing required before sending a packet out to physical media (as described in paragraph [0055], line 8, paragraph [0059] and Fig. 6; e.g. packet encapsulation unit 143);

- a Binding Manager that maintains the binding between home-address and care-of-addresses of registered mobile nodes, and also handles data packets received by the Incoming Packet Processor that are identified to be related to binding of registered mobile routers' addresses (as described in paragraph [0054], lines 1-13 and Fig. 6; e.g. address management table 134, home address field 134-1, care-of address field 134-2);

- a Route Manager that maintains the routing information and handles routing update messages that are received by the Incoming Packet Processor (as described in paragraph [0055], lines 1-12 and Fig. 6); and

a Forwarding Unit that is responsible for the routing of packets to other nodes (as described in paragraph [0049]; network interface 113, using a wireless or wired link).

Momona does not explicitly teach a Configuration Interface that provide configuration information about the home agent and all its legal mobile router users.

Sturniolo teaches a Configuration Interface that provide configuration information about the home agent and all its legal mobile router users (as described in paragraph [0110]; e.g. a web-based configuration interface, SNMP – official notice is taken that configuration interfaces for servers such as home agent or mobile router through e.g. SNMP is well now in the art).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to include a configuration interface to HA as described by Sturniolo in order to offer configuration capability for HA and hence provide a more capable and versatile communication system to the users.

**Regarding claim 2**, Momona does not explicitly teach that the Configuration Interface loads the information from a secondary storage during system boot-up, and reloads the information when it detects that such information has been modified.

Sturniolo teaches that the Configuration Interface loads the information from a secondary storage during system boot-up, and reloads the information when it detects that such information has been modified (as described in paragraph [0110]; e.g. SNMP - official notice is taken that loading configuration information during booting using SNMP managed system (e.g. from a secondary storage of a SNMP manager) through the

Art Unit: 2617

configuration interfaces as well as updating information as detected on SNMP clients (e.g. servers such as home agent or mobile router) are well now in the art).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to provide system configuration from a secondary system or storage device as described by Sturniolo in order to offer automated parameter or system updates and hence provide a more capable and versatile communication system to the users.

**Regarding claim 3**, Momona does not explicitly teach that the Configuration Interface retrieves the configuration information based on input for adapting configuration parameters from a human administrator in real time.

Sturniolo teaches that the Configuration Interface retrieves the configuration information based on input for adapting configuration parameters from a human administrator in real time (as described in paragraph [0110]; e.g. local user interface).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to provide system configuration using a local a user administrator in real time as described by Sturniolo in order to offer real time parameter or system updates and hence provide a more capable and versatile communication system to the users.

**Regarding claim 4**, Momona does not explicitly teach that the Configuration Interface loads the configuration information from a remote central database.



Sturniolo teaches that the Configuration Interface loads the configuration information from a remote central database (as described in paragraph [0110]; e.g. web-based configuration).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to provide system configuration through a remote database as described by Sturniolo in order to offer centralized parameter or system updates and hence provide a more capable and versatile communication system to the users.

**Regarding claim 5**, Momona does not explicitly teach that the Configuration Interface queries a remote central database when it receives configuration parameter query from other components and fetches the information from the remote central database to be returned to the original component that makes the inquiry.

Sturniolo teaches that the Configuration Interface queries a remote central database when it receives configuration parameter query from other components and fetches the information from the remote central database to be returned to the original component that makes the inquiry (as described in paragraph [0110]; e.g. configuration queries from a remote SNMP manager through the configuration interface and updating accordingly).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to provide system configuration to the various components through the main configuration interface as described by

Art Unit: 2617

Sturniolo in order to offer a common interface to facilitate parameter or system updates and hence provide a more capable and versatile communication system to the users.

**Regarding claim 6**, Momona does not explicitly teach that the Configuration Interface further provides the following specific set of configuration parameter relating to the home agent:

(i) information on whether dynamic routing protocol is enabled for mobile routers that are away from home;

(ii) maximum lifetime of binding cache entries;

(iii) maximum lifetime of routing table entries;

(iv) lifetime of a binding cache entry to use when it is unclear whether a dynamic routing protocol will be run by an away mobile router; and

(v) maximum number of Binding Update messages to accept while it is unclear whether a dynamic routing protocol will be run by an away mobile router.

Sturniolo teaches that the Configuration Interface further provides the following specific set of configuration parameter relating to the home agent:

(i) information on whether dynamic routing protocol is enabled for mobile routers that are away from home (as described in paragraphs [0014] and paragraph [0110]);

(ii) maximum lifetime of binding cache entries (as described in paragraphs [0048] and paragraph [0110]);

(iii) maximum lifetime of routing table entries (as described in paragraphs [0048] and paragraph [0110]);

(iv) lifetime of a binding cache entry to use when it is unclear whether a dynamic routing protocol will be run by an away mobile router (as described in paragraphs [0048] and paragraph [0110]); and

(v) maximum number of Binding Update messages to accept while it is unclear whether a dynamic routing protocol will be run by an away mobile router (as described in paragraphs [0232] and paragraph [0110]).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to provide limitations for the various configuration parameter updates as described by Sturniolo in order to offer a robust configuration and hence provide a more capable and versatile communication system to the users.

7. Claims 7-10 are rejected under 35 U.S.C 103(a) as being unpatentable over Momona in view of Sturniolo et al. and further in view of Markki et al. (US Patent Application Publication No. 2008/0089257).

**Regarding claim 7**, Momona does not explicitly teach that the Configuration Interface further provides the following specific set of configuration parameter for each mobile router that is a legal user of the home agent:

(i) information on security associations of mobile router (such as pre-established security key associated to the mobile router);

(ii) information on whether the particular mobile router is authorized to run dynamic routing protocols;

Art Unit: 2617

- (iii) type of dynamic routing protocols the mobile router is authorized to run;
- (iv) the set of default network prefixes that are associated to the mobile router;
- (v) range of network prefixes that can be legally associated to the mobile router;

and

(vi) default action to be taken when the prefix information contained in a binding update message is in conflict or inconsistent with the routing information sent by the mobile router.

Sturniolo teaches that the Configuration Interface further provides the following specific set of configuration parameter for each mobile router that is a legal user of the home agent:

- (i) information on security associations of mobile router (such as pre-established security key associated to the mobile router) (as described in paragraphs [0026] and [0125]; e.g. inherently security association of the mobile router is exchanged).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to communicate security associations of mobile router as described by Sturniolo in order to offer a secure system and hence provide a more capable and versatile communication system to the users.

Momona in view of Sturniolo does not explicitly teach that:

- (ii) information on whether the particular mobile router is authorized to run dynamic routing protocols;
- (iii) type of dynamic routing protocols the mobile router is authorized to run;
- (iv) the set of default network prefixes that are associated to the mobile router;

(v) range of network prefixes that can be legally associated to the mobile router;  
and

(vi) default action to be taken when the prefix information contained in a binding update message is in conflict or inconsistent with the routing information sent by the mobile router.

Markki teaches that:

(ii) information on whether the particular mobile router is authorized to run dynamic routing protocols (as described in paragraph [0022]; e.g. the mobile router is authorized to run dynamic routing protocols);

(iii) type of dynamic routing protocols the mobile router is authorized to run (as described in paragraphs [0022]-[0024]; e.g. inherently the type is communicated by the home agent);

(iv) the set of default network prefixes that are associated to the mobile router (as described in paragraphs [0007] and [0027]; e.g. inherently the prefix is communicated to the mobile router before packets can be sent);

(v) range of network prefixes that can be legally associated to the mobile router (as described in paragraphs [0027] and [0040]; e.g. periodic updates of prefixes includes range); and

(vi) default action to be taken when the prefix information contained in a binding update message is in conflict or inconsistent with the routing information sent by the mobile router (as described in paragraphs [0027], [0040] and [0044]; official action is

Art Unit: 2617

taken that the default action taken by a mobile router in case of inconsistent prefix is inherently part of a default error handling routine incorporated into routers).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona in view of Sturniolo to communicate authorization for using dynamic routing protocols and network prefix information as described by Markki in order to efficiently route the information and hence provide a more capable and versatile communication system to the users.

**Regarding claim 8**, Momona teaches the Binding Manager further maintains the following information about each registered mobile router:

(i) home-address of the mobile router (as described in paragraph [0054] and Fig. 6; e.g. home address);

(ii) care-of-address of the mobile router (as described in paragraph [0054] and Fig. 6; e.g. care-of-address);

(iii) the mode (implicit or explicit) of the last successful binding update message received from the mobile router (as described in paragraphs [0052]-[0054]);

Sturniolo teaches that:

(iv) the time at which this set of information will expire (as described in paragraph [0204]; e.g. expiration time is maintained by the binding manager).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to maintain the expiration time for binding information as described by Sturniolo in order to offer a robust system and hence provide a more capable and versatile communication system to the users.

Momona in view of Sturniolo does not explicitly teach that:

(v) prefix information contained in the last successful binding update message received; and

(vi) the number of binding update messages received from the mobile router while it is still unclear whether a dynamic routing protocol will be run by the mobile router.

Markki teaches that:

(v) prefix information contained in the last successful binding update message received (as described in paragraphs [0027] and [0040]; e.g. inherently the prefix information is in the binding update); and

(vi) the number of binding update messages received from the mobile router while it is still unclear whether a dynamic routing protocol will be run by the mobile router (as described in paragraphs [0022]-[0024]).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona in view of Sturniolo to communicate prefix information in the binding updates and number of binding updates under dynamic routing protocols as described by Markki in order to efficiently route the information and hence provide a more capable and versatile communication system to the users.

**Regarding claim 9**, Momona teaches that the Binding Manager temporarily accepts binding update from a mobile router that does not explicitly specifies any mobile network prefix and does not have a default associated network prefix to wait for the

Art Unit: 2617

mobile router to run a dynamic routing protocol by specifying a short Lifetime value in the binding acknowledgement (as described in paragraphs [0079] and [0081]).

Momona does not explicitly teach that Binding Manager rejects subsequent binding updates if the mobile router fail to send prefix information using a dynamic routing protocol after a pre-determined period of time since the first binding update is accepted.

Sturniolo teaches that Binding Manager rejects subsequent binding updates if the mobile router fail to send prefix information using a dynamic routing protocol after a pre-determined period of time since the first binding update is accepted (as described in paragraph [0204]; e.g. expiration time is maintained by the binding manager).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to reject binding updates after the expiration time as described by Sturniolo in order to offer a robust system and hence provide a more capable and versatile communication system to the users.

**Regarding claim 10**, Momona does not explicitly teach that the Binding Manager temporarily accepts binding update from a mobile router that explicitly specifies a single or plurality of mobile network prefix to wait for the mobile router to run a dynamic routing protocol by specifying a short Lifetime value in the binding acknowledgement, and rejects subsequent binding updates if any of the explicitly specified prefixes is in conflict with the routes installed by routing update messages sent from the mobile router running a dynamic routing protocol, or accepts subsequent binding updates with normal



Art Unit: 2617

Lifetime values if there is no such conflict after a pre-determined period of time since the first binding update is accepted.

Sturniolo teaches that the Binding Manager temporarily accepts binding update from a mobile router that explicitly specifies a single or plurality of mobile network prefix to wait for the mobile router to run a dynamic routing protocol by specifying a short Lifetime value in the binding acknowledgement, and rejects subsequent binding updates if any of the explicitly specified prefixes is in conflict with the routes installed by routing update messages sent from the mobile router running a dynamic routing protocol (as described in paragraphs [0022]-[0024] and [0027]), or

accepts subsequent binding updates with normal Lifetime values if there is no such conflict after a pre-determined period of time since the first binding update is accepted (as described in paragraphs [0022]-[0024] and [0027]).

Therefore it would have been obvious to a person with ordinary skill in the art at the time the invention was made to modify Momona to accept or reject binding updates based on expiration time and prefix conflicts as described by Sturniolo in order to efficiently route the information and hence provide a more capable and versatile communication system to the users.

### ***Conclusion***

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to JALALEDDIN AMIRMOKRI whose telephone

Art Unit: 2617

number is (571)270-5880. The examiner can normally be reached on M-F 8am-5m EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, PATRICK EDOUARD can be reached on (571)272-7603. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/J.A./

06/12/10

/Patrick N. Edouard/  
Supervisory Patent Examiner, Art Unit 2617